

WASHINGTON DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
FRESHWATER MONITORING UNIT
STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 03J100
STATION NAME: Hansen Cr. near Sedro Woolley
WATER YEAR: WY2005
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Introduction

Watershed Description

The Hansen Creek drainage stretches from the southwest side of Lyman Hill south to the Skagit River just east of Sedro-Woolley. The watershed encompasses steep forested and logged slopes reaching elevations above 3,600 feet and drops abruptly to the Skagit Valley lowlands with the elevation less than 100 feet at the gage.

Gage Location

The gage is located near RM 4.0 on Hansen Creek, on Skagit County property at the Northern State Recreation Area. The primary gage index is a staff gage mounted near the right bank of the creek at the base of a large tree about 15 feet downstream from the Thompson Drive Bridge. The gage house is located on the left bank, at roughly the same elevation as the roadway.

Table 1.

Drainage Area (square miles)	10
Latitude (degrees, minutes, seconds)	48, 31, 50, N.
Longitude (degrees, minutes, seconds)	122, 12, 02, W.

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	6.0
Median Annual Discharge (cfs)	4.3
Maximum Daily Mean Discharge (cfs)	38
Minimum Daily Mean Discharge (cfs)	2.2
Maximum Instantaneous Discharge (cfs)	46
Minimum Instantaneous Discharge (cfs)	1.8
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	10
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	2.6
Number of Days Discharge is Greater Than Range of Ratings	None
Number of Days Discharge is Less Than Range of Ratings	7

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

These discharge statistics cover the partial water year period from June 9th to the end of September. The values reported are not representative of conditions that would be recorded through a complete water year.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	---
Weighted Rating Error (% of discharge)	7%
Total Potential Error (% of discharge)	7%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	1	2	101
Period of Ratings	6/8 to 7/14	7/14 to 9/29	9/29 thru 9/30
Range of Ratings (cfs)	1.5 to 83 cfs	2.0 to 83 cfs	1.5 to 83 cfs
No. of Defining Measurements	4	4	4
Rating Error (%)	8%	7%	8%

Rating Table No.	3		
Period of Ratings	Beyond 9/29		
Range of Ratings (cfs)	2.2 to 115 cfs		
No. of Defining Measurements	5		
Rating Error (%)	12%		

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

Rating Tables #1 (repeated as #101) and #2 effectively cover the entire period. After 9/29 Rating #101 is phasing to become Rating #3 later in WY2006. The effects of Rating #3 are negligible during WY2005.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	4.51
Maximum Recorded Stage (feet)	5.35
Range of Recorded Stage (feet)	0.84
Number of Un-Reported Days	7
Number of Days Qualified as Estimates	84
Number of Days Qualified as Unreliable Estimates	0

Narrative

The station had its first full day of operation on June 9, 2005 and ran for 114 days through the remainder of WY2005. There were 23 days of good-quality data recorded during the year. A defective pressure transducer in the gaging instrument was responsible for the qualification as estimates of 80 days of data. Each of the seven unreported days had one or more instantaneous discharge values less than half of the lowest measured flow for the period.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	None
Range of Modeled Stage (feet)	
Range of Modeled Discharge (cfs)	
Valid Period for Model	
Model Confidence	

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Station and Cross Section	9/8/2005

Activities Completed

Station installation and start-up 6/8/2005.